IBM Tealeaf cxReveal
Version 9 Release 0.1
December 4, 2014

cxReveal API Guide

Note
Before using this information and the product it supports, read the information in "Notices" on page 15.

This edition applies to version 9, release 0, modification 1 of IBM Tealeaf cxReveal and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Chapter 1. cxReveal API Guide

The IBM Tealeaf cxReveal API Guide provides an overview of the application-level interfaces provided by IBM Tealeaf cxReveal. Use the links below to access specific topics in the manual.

Submitting A Pre-Configured Search

Note: When NT authentication is in use on IIS7, you must disable Forms Authentication (HTTP 302 Login/Redirect) on IIS Authentication for the Portal site. See "Authentication" in the *IBM Tealeaf cxImpact Administration Manual*.

Session Search

Session search queries are passed to Search Server for execution against the appropriate canisters to retrieve sessions.

- For more information on the Portal-based version of session search, see "Searching Session Data" in the *IBM Tealeaf cxImpact User Manual*.

Overview

All parameters must be URL-encoded.

All arguments are optional, but nothing will happen if you don't provide either an active query or an archive query. Providing both will perform an All Sessions search using both.

Argument
Value

`activequery`
The active search query to perform. There is no validation, and it is sent directly to search server as a query.

`archivequery`
The archive search query to perform.

`datespan`
The numeric constant representing the dates to search on. Accepted values:

- 0 - All
- 1 - Only Today
- 2 - Only Yesterday
- 3 - Last 2 Days
- 4 - Last 7 Days
- 5 - Last 14 Days
- 6 - Last 28 Days
- 7 - Last 6 Hours
- 8 - Last 12 Hours
- 9 - Last 24 Hours
- 10 - last hour
- 11 - Latest 5 minutes
- 12 - Latest Hour

- -1 - Use Specified Dates and Times

startdate
If datespan is set to -1, this is the ISO-format date for the beginning date of the range (e.g. 2007-01-02 is Jan 02, 2007)

enddate
If datespan is set to -1, this is the ISO-format date for the end date of the range (e.g. 2007-01-02 is Jan 02, 2007)

starttime
If datespan is set to -1, this is the 6-digit, 24-hour time for the beginning of the range, in HHMMss format (e.g. 003015 is 00:30:15 or 12:30:15 AM)

endtime
If datespan is set to -1, this is the 6-digit, 24-hour time for the end of the range, in HHMMss format (e.g. 233059 is 23:30:59 or 11:30:59 PM)

scope The scope of the search. Does not really apply since the query is already built, if scope is set to 2 for an archive search, it will be `and on same page` for the query. How the results will be sorted.

timeout
The maximum allotted time for an archive search, in seconds. The search will be stopped once this amount of time has elapsed, but more time may be required to collate the sessions found.

autostop
Specifies the limit at which an archive search will be stopped. When X matching sessions are found, the search is stopped.

Examples
All parameters must be URL-encoded.

Since this mode goes directly to the search results there is no way for a user to modify a search performed in this way.

Example

Search all text for `tealeaf`.

URL

```
SessionSearch.aspx?activequery=%28request_contains_tealeaf%29_OR
   _%28response_contains_tealeaf%29&archivequery=%28tealeaf%29
```

Active query: `(request contains tealeaf) OR (response contains tealeaf)`
Archive query: `(tealeaf)`

Populating a Search Template

See "Configuring Search Templates" in the *IBM Tealeaf cxImpact Administration Manual*.

Search Template Fields

Field **Value**

template
1 - <Default Active>
2 - <Default Archive> (Standard mode)

3 - <Default Archive> (Extended mode)
4 - <Default All Sessions> (Standard mode)
5 - <Default All Sessions> (Extended mode)

datespan
0 - All
1 - Only Today
2 - Only Yesterday
3 - Last 2 Days
4 - Last 7 Days
5 - Last 14 Days
6 - Last 28 Days
7 - Last 6 Hours
8 - Last 12 Hours
9 - Last 24 Hours
10 - last hour
11 - Latest 5 minutes
12 - Latest Hour
-1 - Use Specified Dates and Times

startdate
If datespan is set to -1, this is the ISO-format date for the beginning date of the range (e.g. 2007-01-02 is Jan 02, 2007)

enddate
If datespan is set to -1, this is the ISO-format date for the end date of the range (e.g. 2007-01-02 is Jan 02, 2007)

starttime
If datespan is set to -1, this is the 6-digit, 24-hour time for the beginning of the range, in HHMMss format (e.g. 003015 is 00:30:15 or 12:30:15 AM)

endtime
If datespan is set to -1, this is the 6-digit, 24-hour time for the end of the range, in HHMMss format (e.g. 233059 is 23:30:15 or 11:30:59 PM)

scope 0 - AND
1 - OR
2 - AND On Same Page (all constraints appear on a single page)

timeout
0 - No Timeout
90
180
300
600

autostop
0 - No Limit
1000
5000
10000
20000

opX 1 - None

Note: If you have fewer than five specified search field arguments, the operator for the non-specified parameters should be set to `none`.

2 - Equals
3 - Not Equals
4 - Like
5 - Not_Like

sort **Active and All Sessions searches**
0 - Num Hits
1 - Session Index
2 - Last Use (Time)

Completed searches
0 - Session score
1 - Application Errors
2 - Client Errors
3 - Server Errors
4 - Time Errors
5 - Size Errors
6 - Event Type
7 - not used
8 - IP Address
9 - Num Hits
10 - Num Requests
12 - Num Responses
13 - Random
14 - Session Index
15 - Text Pages
16 - UsrSts0
17 - UsrSts1
18 - First Use (Time)
19 - Last Use (Time)
20 - Canister Date

Chapter 2. Configuration

When the Tealeaf Portal Application is installed into IIS, all necessary files to enable the Web Services API are installed. To verify installation, navigate to the following URL:

```
http://<portalmachine>/PortalAPI/cxReveal.asmx
```

If you receive a valid page the API is installed and available.

If not, you must create a PortalAPI virtual directory that maps to:

```
<TeaLeaf_install_directory>\Portal\WebService\
```

Note: It is the customer's responsibility to implement the Web Service logic.

Overview

Purpose: This API is intended to allow developers to integrate Tealeaf session search/replay into a custom application. Regardless of the developer's knowledge of the Tealeaf system, search is undoubtedly still untouched territory. In an attempt to make this API usable by developers who may not be very familiar with the Tealeaf system, the input/output of this API has been greatly simplified.

Supported Protocols: SOAP 1.1, SOAP 1.2, HTTP GET and HTTP POST

Requirements: Cookie support - most API functions require the API authentication cookie to be present, if the client does not support cookies, the cookie will not be preserved between requests.

The Web Service supports both REST and SOAP.

WSDL

If you're using a language that has a web service package that supports reading from a WSDL, the Tealeaf Web Service enables you to retrieve the WSDL.

- A WSDL is an XML doc that describes the Web Service can do. Typically, your web service package formulates the code API automatically for you.

The WSDL is available at:

```
http://hostname/PortalAPI/cxReveal.asmx?WSDL
```

API Methods

The API methods (this listing and further API specification are available by navigating to:

```
http://hostname/PortalAPI/cxReveal.asmx
```

- **Authenticate:** Authenticate web service connection with a Portal username and password. A null string is returned if successful, otherwise the error message is returned.
- **GetPageResponse:** Returns the page content type and response, null on error.
- **GetSearchEventsList:** Returns a list of canister events available for searching, null on error.

- **GetSearchResults:** Returns a list of session objects returned from the search, null on error.
- **GetSearchSortFields:** Returns a list of TLSortField objects representing the description/ID of acceptable search sort fields. Returns null on error.
- **GetSearchStatus:** Check the current status of a search. Only request results once 'Done' and 'DownloadComplete' are both true. Returns null on error.
- **GetSessionAnnotations:** Retrieves a list of session annotations in columns Username, Timestamp, and Text for the specified session.
- **GetSessionPagesList:** Returns a list of pages for a given session, null on error.
- **StartSearch:** Initiate a search for both active and archived sessions. Dates must supply the time and be ISO formatted. Returns the new query ID for the search. Return -1 on error.
- **StartDbSearch:** Initiate a IBM Tealeaf cxReveal database search. Dates must supply the time and be ISO formatted. Returns the new query ID for the search. Return -1 on error.
- **VerifyAuthentication:** Verify that the Authenticate call was successful. Returns true if authenticated.

Note: The string values for `SessionDate` and `AnnotationText` must be URL-encoded.

Using the API

The only API methods that do not require authentication are Authenticate and VerifyAuthentication. As such, the first step towards using the API is to call the Authenticate method with a valid Portal username and password and on success, make an additional call to VerifyAuthentication. If VerifyAuthentication fails, all other API methods will fail as well. Once authentication has been verified, all other API methods will be accessible.

StartSearch method

The StartSearch method requires five parameters: ActiveQuery, ArchiveQuery, StartDate, EndDate and SortField.

- **ActiveQuery:** A query adhering to the Tealeaf active search syntax.
- **ArchiveQuery:** A query adhering to dtSearch syntax
- **StartDate:** An ISO formatted string representing the earliest date/time for which to return sessions (date should be relate to the user's time zone, as the date is converted to GMT on the server).
- **EndDate:** An ISO formatted string representing the latest date/time for which to return sessions (date should be relate to the user's time zone, as the date is converted to GMT on the server).
- **SortField:** An integer representing the various post-search sorts that can be applied to a search. The list of sort fields is accessible via the GetSearchSortFields method which provides the ID and text description for each possible sort field.
  - Hit Count - 0
  - Session Index - 1
  - Last Use - 2

To provide the best functionality/availability, StartSearch only initiates the search.

StartDbSearch method

IBM Tealeaf cxReveal enables the capture and insertion of session attribute information into a dedicated database, which can be immediately searched by IBM Tealeaf cxReveal users for sessions.

Note: Database search is a component of cxReveal, a separately licensable component of the Tealeaf CX platform. please contact your IBM Tealeaf representative.

- See "Configuring Session Attribute Search" in the *IBM Tealeaf cxReveal Administration Manual*.
- For more information on the Portal-based version of IBM Tealeaf cxReveal database search, see "cxReveal - Searching Sessions by Session Attribute" in the *IBM Tealeaf cxReveal User Manual*.

The StartDbSearch method requires the following parameters.

- All parameters must be URL-encoded.
- All arguments are required.
- If you have fewer than five specified search field arguments, the operator for the non-specified parameters should be set to `none`.
- **SessionFilter:** The type of session. Accepted values: `ACTIVE`, `CLOSED` (completed) or `ALL` (universal).
- **StartDate:** If datespan is set to -1, this is the ISO-format date for the beginning date of the range (e.g. 2007-01-02 is Jan 02, 2007)
- **EndDate:** If datespan is set to -1, this is the ISO-format date for the end date of the range (e.g. 2007-01-02 is Jan 02, 2007)
- **AndParameters:** For the specified search terms, this setting denotes whether the query should execute them using an `AND` or `OR` operator.
- **Attr1Index:** Index number to the session attribute that is search field 1 in IBM Tealeaf cxReveal search (`0` to `63`).
- The session attributes and their index numbers are available for review in the Session Attributes tab of the Event Manager.
- **Param1Op:** The operator to apply to the field to compare it to the `ParamValue`.
- **Param1Value:** The value to which the session attribute is compared
- **Attr2Index:** Index number to the session attribute that is search field 2 in IBM Tealeaf cxReveal search (`0` to `63`).
- The session attributes and their index numbers are available for review in the Session Attributes tab of the Event Manager.
- **Param2Op:** The operator to apply to the field to compare it to the `ParamValue`.
- **Param2Value:** The value to which the session attribute is compared
- **Attr3Index:** Index number to the session attribute that is search field 3 in IBM Tealeaf cxReveal search (`0` to `63`).
- The session attributes and their index numbers are available for review in the Session Attributes tab of the Event Manager.
- **Param3Op:** The operator to apply to the field to compare it to the `ParamValue`.
- **Param3Value:** The value to which the session attribute is compared
- **Attr4Index:** Index number to the session attribute that is search field 4 in IBM Tealeaf cxReveal search (`0` to `63`).
- The session attributes and their index numbers are available for review in the Session Attributes tab of the Event Manager.

- **Param4Op:** The operator to apply to the field to compare it to the `ParamValue`.
- **Param4Value:** The value to which the session attribute is compared
- **Attr5Index:** Index number to the session attribute that is search field 5 in IBM Tealeaf cxReveal search (`0` to `63`).
- The session attributes and their index numbers are available for review in the Session Attributes tab of the Event Manager.
- **Param5Op:** The operator to apply to the field to compare it to the `ParamValue`.
- **Param5Value:** The value to which the session attribute is compared

StartDBSearch utilizes the same status and retrieval methods as the StartSearch method. See "StartSearch method" on page 6.

GetSearchStatus method

GetSearchStatus should be used to check if the search has completed. GetSearchResults should only be called once both Done and DownloadComplete return true.

GetSearchStatus will return the following information:

- **Name:** the search name
- **DocumentsFound:** the number of sessions found
- **HitsFound:** the number of total hits found
- **IndexName:** the name of the current index being searched
- **PercentDone:** this is solely for a visual
- **Done:** this is set when the search and session collation has completed
- **CancelState:** if the search reports as being cancelled, this value will be a non-zero value
- **IndexesSearched:** number of search indexes searched thus far
- **IndexesTotal:** total number of search indexes to search
- **SearchTime:** elapsed search time in seconds
- **Error:** if an error occurs, this field will be populated
- **DownloadComplete:** search results have been retrieved, GetSearchResults can now be called
- **NextUpdate:** millisecond value for the minimum time to wait before the next GetSearchStatus call.

GetSearchResults method

GetSearchResults should only be called once GetSearchStatus for a search has returned that both Done and DownloadComplete are true.

Aside from the standard session meta-data, TLMiniSession has extra fields that are worth discussing:

- **IsActiveSession:** If the session still lives in the STC (Short Term Canister), this field will be set. If a CSR is looking for the session for a customer who just experienced a problem, it is likely that the session is still be in the STC)
- **ReplayLinkBBR:** A URL pointing to the Portal that will cause BBR (Browser Based Replay) to load this session
- **ReplayLinkRTV:** A URL that will (if it is installed) open the current session in RTV (IBM Tealeaf CX RealiTea Viewer)

- **SessionListIndex:** This value is used when calling session specific methods and should not be displayed.

GetSessionPagesList method

GetSessionPagesList will return a list of TLMiniPage entries for every page (not every hit) in the session. Each TLMiniPage entry contains all the hit metadata as well as the Iamie, Env, AppData, UrlField, Cookies, TimeStamp, AppEvents, Ref, RspHeaders and RawRequest sections of the hit.

- For a given page in the pages list returned by GetSessionPagesList, GetPageResponse can be called to return the HTTP Response for that hit/page.

GetSessionAnnotations method

The GetSessionAnnotations method returns a list of the session annotations in the columns of Username, Timestamp and Text.

Similar to GetSessionReplayLink, GetSessionAnnotations requires the following parameters:

- **SessionType** - The type of session. Accepted values: `ACTIVE`, `CLOSED` or `ALL`.
- **Field** - The field used to identify the session. Possible values: `TLTSID`, `TLTUID`, `SessionAttribute00` to `SessionAttribute04`.
- **Value** - The value of Field for which to search.
- **MD5** - If set to `true`, the value is hashed before generating the search query.
- **SessionDate** - The date of the session. A blank string is valid.
- **SessionPreference** - The session to return on the chosen date. Accepted values: `EARLIESTDT`, `LATEST` or `ANY`.

Example Code

```
using SampleApplication.TeaLeaf;

namespace SampleApplication
{
  class Program
  {
    static void Main(string[] args)
    {
      RevealAPIDemo();
    }

    public bool RevealAPIDemo()
    {
      String DateFormat = "yyyy-MM-dd HH:mm:ss";

      cxRevealAPI reveal = new cxRevealAPI();

      // All API clients must support cookies
      reveal.CookieContainer = new CookieContainer();

      // A fix for the .NET webservice class
      // ServicePointManager.MaxServicePointIdleTime = 0;

      String UserName = "admin";
      String Password = "init";

      String Authenticated = reveal.Authenticate(UserName, Password);

      // Verify that the Authenticate call was successful
      if (Authenticated != null) // Not Authenticated
```

```
{
  Console.WriteLine("Authentication failed: " + Authenticated);
  return false;
}

// If this call fails, Cookies are most likely not being
// transmitted/stored correctly
bool VerifyAuth = reveal.VerifyAuthentication();
if (!VerifyAuth)
{
  Console.WriteLine("Secondary authentication check failed, please check
    your cookie settings.");
  return false;
}

String ActiveQuery = "(numhits > 0)";
String ArchiveQuery = "(tltstssesnidx)";

String StartDate = DateTime.Now.AddHours(-12).ToString(DateFormat);
String EndDate = DateTime.Now.ToString(DateFormat);

TLSortField[] SortFields = reveal.GetSearchSortFields();
//SortFields[0] = Hit Count
//SortFields[1] = Session Index
//SortFields[2] = Last Use
TLSortField HitCount = SortFields == null ? null : SortFields[0];

int SearchID = reveal.StartSearch(ActiveQuery, ArchiveQuery, StartDate,
               EndDate, HitCount == null ? 0 : HitCount.SortID);

if (SearchID == -1) // -1 on error
{
  Console.WriteLine("The search failed to start, please check your
    search parameters.");
  return false;
}

TLSearchStatus SearchStatus = null;
int AttemptsLeft = 5;

while (SearchStatus == null || !SearchStatus.Done ||
       !SearchStatus.DownloadComplete)
{
  SearchStatus = reveal.GetSearchStatus(SearchID);
  if (SearchStatus != null && SearchStatus.CancelState != 0)
  // If the search has been cancelled, stop checking the status
  {
    Console.WriteLine("The search has been cancelled.");
    return false;
  }

  if (SearchStatus != null)
  {
    Console.WriteLine("Percent complete: " + SearchStatus.PercentDone
        + " Done: " + SearchStatus.Done
        + " DownloadComplete: " + SearchStatus.DownloadComplete);

    if (!SearchStatus.Done || !SearchStatus.DownloadComplete)
        Thread.Sleep(SearchStatus.NextUpdate);
        // Sleep for the time designated by the search status
    else
        break;
  }
  else
  {
    AttemptsLeft--;
```

```
    if (AttemptsLeft < 1)
    {
        Console.WriteLine("The search status could not be found.");
        return false;
    }

    Thread.Sleep(500);
    // Wait 500 ms in case the search start was possibly delayed
  }
}

TLMiniSession[] Sessions = reveal.GetSearchResults(SearchID, 100);
if (Sessions == null)
{
  Console.WriteLine("Unable to download the search results.");
  return false;
}

Console.WriteLine(Sessions.Length + " sessions have been downloaded.");

TLMiniSession Session = null;
if (Sessions.Length > 0) // Use the first session found
  Session = Sessions[0];

if (Session == null)
{
  Console.WriteLine("No sessions were found.");
  return false;
}

Console.WriteLine("The first session from the search results has " +
                  Session.NumHits + " hits.");
Console.WriteLine("RTV link for the first session: " +
                  Session.ReplayLinkRTV);
Console.WriteLine("BBR link for the first session: " +
                  Session.ReplayLinkBBR);

// Print out which events are associated with this session
if (Session.Events == null || Session.Events.Length == 0)
  Console.WriteLine("No events are associated for this session.");
else
{
  Console.WriteLine("This session had the following events:");

  foreach (TLMiniEventDefn Event in Session.Events)
    Console.WriteLine("\tEventDesc: " + Event.Description + " - Image
                      URL: " + Event.ImageURL);
}

TLMiniPage[] Pages = reveal.GetSessionPagesList(SearchID,
                     Session.SessionListIndex);
if (Pages == null)
{
  Console.WriteLine("Unable to download the pages list for
                     this session.");
  return false;
}

Console.WriteLine("The first session from the search results has " +
                  Pages.Length + " pages.");

TLMiniPage Page = null;
if (Pages.Length > 0)
  Page = Pages[0];

if (Page == null)
{
```

```
        Console.WriteLine("There was a problem accessing the first page of
                          this session.");
        return false;
      }

      Console.WriteLine("Page URL (w/o Params): " + Page.Url);
      Console.WriteLine("Page URL (w/  Params): " + Page.UrlFull);

      TLPageResponse Response = reveal.GetPageResponse(SearchID,
                                Session.SessionListIndex, Page.HitNumber);
      if (Response == null)
      {
        Console.WriteLine("Unable to download the response for this
                          page/hit.");
        return false;
      }

      Console.WriteLine("The response for the first page of this session was "
        + (Response.Response == null ? 0 : Response.Response.Length) + "
                                characters long.");

      return true;
    }
  }
}
```

Chapter 3. IBM Tealeaf documentation and help

IBM Tealeaf provides documentation and help for users, developers, and administrators.

Viewing product documentation

All IBM Tealeaf product documentation is available at the following website:

https://tealeaf.support.ibmcloud.com/

Use the information in the following table to view the product documentation for IBM Tealeaf:

Table 1. Getting help

To view...	**Do this...**
Product documentation	On the IBM Tealeaf portal, go to **?** > **Product Documentation**.
Help for a page on the IBM Tealeaf Portal	On the IBM Tealeaf portal, go to **?** > **Help for This Page**.
Help for IBM Tealeaf CX PCA	On the IBM Tealeaf CX PCA web interface, select **Guide** to access the *IBM Tealeaf CX PCA Manual*.

Available documents for IBM Tealeaf products

Use the following table to view a list of available documents for all IBM Tealeaf products:

Table 2. Available documentation for IBM Tealeaf products

IBM Tealeaf products	**Available documents**
IBM Tealeaf CX	• *IBM Tealeaf Customer Experience Overview Guide* • *IBM Tealeaf CX Client Framework Data Integration Guide* • *IBM Tealeaf CX Configuration Manual* • *IBM Tealeaf CX Cookie Injector Manual* • *IBM Tealeaf CX Databases Guide* • *IBM Tealeaf CX Event Manager Manual* • *IBM Tealeaf CX Glossary* • *IBM Tealeaf CX Installation Manual* • *IBM Tealeaf CX PCA Manual* • *IBM Tealeaf CX PCA Release Notes*

Table 2. Available documentation for IBM Tealeaf products (continued)

IBM Tealeaf products	Available documents
IBM Tealeaf CX	• *IBM Tealeaf CX RealiTea Viewer Client Side Capture Manual* • *IBM Tealeaf CX RealiTea Viewer User Manual* • *IBM Tealeaf CX Release Notes* • *IBM Tealeaf CX Release Upgrade Manual* • *IBM Tealeaf CX Support Troubleshooting FAQ* • *IBM Tealeaf CX Troubleshooting Guide* • *IBM Tealeaf CX UI Capture j2 Guide* • *IBM Tealeaf CX UI Capture j2 Release Notes*
IBM Tealeaf cxImpact	• *IBM Tealeaf cxImpact Administration Manual* • *IBM Tealeaf cxImpact User Manual* • *IBM Tealeaf cxImpact Reporting Guide*
IBM Tealeaf cxConnect	• *IBM Tealeaf cxConnect for Data Analysis Administration Manual* • *IBM Tealeaf cxConnect for Voice of Customer Administration Manual* • *IBM Tealeaf cxConnect for Web Analytics Administration Manual*
IBM Tealeaf cxOverstat	*IBM Tealeaf cxOverstat User Manual*
IBM Tealeaf cxReveal	• *IBM Tealeaf cxReveal Administration Manual* • *IBM Tealeaf cxReveal API Guide* • *IBM Tealeaf cxReveal User Manual*
IBM Tealeaf cxVerify	*IBM Tealeaf cxVerify Administration Manual*
IBM Tealeaf cxView	*IBM Tealeaf cxView User Manual*
IBM Tealeaf CX Mobile	• *IBM Tealeaf CX Mobile Android Logging Framework Guide* • *IBM Tealeaf Android Logging Framework Release Notes* • *IBM Tealeaf CX Mobile Administration Manual* • *IBM Tealeaf CX Mobile User Manual* • *IBM Tealeaf CX Mobile iOS Logging Framework Guide* • *IBM Tealeaf iOS Logging Framework Release Notes*

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